

# Workshop Without Walls: Upstairs Downstairs

## Breakout Group 2 Note-taking

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### **1) *What do we need to learn more about regarding different modes of tectonics? Key unknowns?***

Make definitional boundaries for different modes.

What are the results of different modes (high mountains/erosion effects? faster cycling? slower cycling? subduction as a sink for the hydrosphere? -side topic about impacts/volcanism providing alternative erosional surfaces)

How does the core:mantle ratio affect tectonics?

Does depth (in mantle) of cycling of material affect surface flexes? In terms of rate and composition?

To what extent are the climate and other Earth dynamics affected by our moon.

Can observations (both stellar and planetary) help predict the mode of tectonics? (Problem: difficult to estimate internal heat flux - maybe (?) better radioactive element stellar abundances could help, tidal heating models)

Effects of tectonics (and weathering) on the productivity of the biosphere?

### **2) *What observations need to be made to answer these unknowns?***

#### TECTONICS

magnetic field observations: informs about core mantle boundary heat flux.

better stellar elemental abundances?

land surface vs water surface coverage (topography via albedo if we're dreaming big)

#### EROSIONAL

Rotational rates (because they affect weathering and thus perhaps primary productivity of "biosignature" gases.

Cloud detection as proxy for rainfall and thus weathering; also can help inform us about atmospheric thickness.